WHAT IS CLAIMED IS:

1. A method for producing a homogeneous compressed gas mixture, said method comprising premixing separately supplied gases to form a non-homogeneous gas mixture; passing the non-homogeneous gas mixture into a static mixer or a buffer tank; conveying the gas mixture from the mixer or buffer tank into a compressor; compressing the gas mixture in the compressor; and withdrawing a substantially homogeneous compressed gas mixture from the compressor; wherein said gas mixture comprises at least one perfluorinated or partially fluorinated hydrocarbon or ether.

2. A method according to claim 1, wherein said gas mixture further comprises at least one gas selected from the group consisting of SF_6 and inert gases.

3. A method according to claim 2, wherein said mixture comprises an inert gas selected from the group consisting of noble gases, CO_2 and N_2.

4. A method according to claim 1, wherein said mixture comprises at least one perfluorinated or partially fluorinated hydrocarbon or ether and SF_6.

5. A method according to claim 1, wherein said mixture comprises at least one perfluorinated or partially fluorinated hydrocarbon and N_2.

6. A method according to claim 5, wherein said mixture consists of at least one perfluorinated or partially fluorinated hydrocarbon and N_2.

7. A method according to claim 1, wherein said mixture comprises at least one perfluorinated or partially fluorinated hydrocarbon selected from the group consisting of C_3F_8, CHF_2CF_3, CF_3CHFCF_3, CH_2FCF_3, CH_3CF_3, CHF_3, CF_4, CF_3CF_3, CF_3OCHF_2.

8. A method according to claim 1, wherein the compressed gas mixture withdrawn from the compressor has a pressure of up to 13 bar.

9. A method according to claim 1, wherein the non-homogeneous gas mixture is passed into a buffer tank and conveyed from the buffer tank to the compressor; further comprising returning a portion of the compressed gas mixture withdrawn from the compressor through a return line to the buffer tank, and wherein a control valve is installed in the return line for adjusting the return of compressed gas mixture to a desired volume percentage of the compressed gas withdrawn from the compressor.

10. A method according to claim 1, wherein a homogeneous compressed gas mixture is produced having a composition which deviates by at most ±0.7 volume-% from ideal homogeneity.

11. A method according to claim 1, wherein gas streams which are to be mixed are regulated using mass flow meters.

12. A method according to claim 11, wherein said method is carried out in a mobile mixing apparatus.

13. A method according to claim 1, further comprising introducing the substantially homogeneous compressed gas mixture as an insulating gas into a current-carrying underground cable or a gas-insulated switch.